biosynthesis becomes apparent from these sections of the book.

The final section deals with the area of phospholipid transfer proteins which is perhaps a less glamorous aspect of phospholipid biochemistry. However, this is an area that may achieve a much higher profile in future as the role of these proteins in cell function is clarified.

The previous volumes in this series that cover phospholipids date back to 1981 (volumes 71 and 72). I am sure the time interval before this area of enzymology is covered again will be shorter.

David Wilton

The Mitochondrion in Health & Disease; by David Tylor, VCH Publishers; New York, 1992; xv + 557 pages. DM 225.00. ISBN 1-56081-046-7.

This book provides a detailed record of the structure, metabolic activities and abnormalities of mitochondria. It is no surprise to read that the idea for the book came to the author almost 20 years ago. It was the two decades of the 1960's and 1970's where rapid change and paradigm shift provided the basis for present day molecular and medical studies. Tyler's approach is mainly historical, and in some respects slightly old fashioned. None the worse for that it might be said. How many times do the glossy present day texts gain in clarity but lose in interest and excitement? Unfortunately the present volume leans slightly too far to the descriptive, and becomes a source of information rather than a text for explanation.

The book opens with a 40 page chapter on the 100 year history of mitochondrial research. This is informative and interesting and obviously reflects the authors deep commitment and personal involvement in the subject. The next 100 or so pages deal with morphology, an area often neglected in most textbooks. The thoroughness of treatment in this area does not always extend to some of the other topics. Contrast for example a relatively meagre 14 pages allocated to mitochondrial DNA, RNA and protein synthesis. Nevertheless, the chapters on metabolism and respiratory systems of mitochondria are detailed and full of helpful information for the interested reader. A full chapter is usefully given to the metabolite-transporting systems of mitochondria.

Sometimes the historical approach is counter-productive and interferes with the flow of material. Is it really necessary to give coverage to the early alternative theories of energy coupling in the main text? These could be moved easily to the opening historical chapter. Some sections are more up-to-date than others. Most do not go further than the mid 1980's. The final chapter, however, does present a topical and readable survey of medical aspects of mitochondrial research. Disorders of mitochondrial metabolism are thankfully few in number. Their study, however, is important not only for the understanding of the particular disease but also often provides information on mitochondrial assembly and function in humans.

A strangely anecdotal glossary is provided. It includes such items as the etymology of fumarate (smoke), succinate (amber) and aconitate (monkshood), but also several straightforward entries such as biochemistry, hypothesis and substrate.

Overall, the author's extensive knowledge of the subject enables him to present a workmanlike survey of a century of progress in mitochondrial research.

John M. Wrigglesworth

Calcium Ions in Nerve Cell Function; by P.G. Kostyuk, Oxford; Oxford University Press, 1942; viii + 220 pages. £ 32.50. ISBN 0-19-854672-6.

Professor Kostyuk and his colleagues in the Bogomoletz Institute of Physiology in Kiev have made many notable contributions to the study of Ca currents in nerve cells, extending back some twenty years or so. Many of these contributions stemmed from the introduction of their technique for intracellular perfusion (described in detail in another book, *Intracellular Perfusion of Excitable Cells*, by P.G. Kostyuk and O.A. Krishtal: Wiley, 1984). This allowed a much more rigorous isolation of the relatively small Ca currents from larger contaminating currents. They first applied this technique to large snail neurons but then extended it to mammalian sensory neurons. Unlike many of his 'Eastern block' colleagues, much of Professor Kostyuk's work has been published in major Western journals, so is readily accessible. Notwithstanding, this little volume provides, inter alia, a very welcome summary of his laboratory's work, including such less well-known aspects as (for instance) the effects of Ca^{2+} ions on electrophoretic mobility.

As the above implies, the major part of the book concerns electrophysiological studies on voltage-gated Ca-currents – largely, but not exclusively, in molluscan nerve cells. Ten years ago this would have been an esoteric and foreign territory to readers of FEBS Letters, but times have changed and FEBS Letters now has its fair share of ion channel papers, replete with records of channel currents. Nevertheless, the reader should be warned that